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ABSTRACT

Radar tracking system

A radar tracking system for an anti-aircraft missile, including angle tracking, doppler tracking and range tracking feedback loops operating on sum and difference channels.

5 Fast fourier transform digital filters are used to provide a frequency spectrum of the sum and difference I.F. channels and detection and confirmation algorithms are employed for selecting the F.F.T. target 'bin'. Adjacent F.F.T. bins are used to simulate a bin centred
10 on the target frequency, shifts of the latter with target/missile acceleration causing frequency errors which are detected by a discriminator and used to control the target I.F.

15 Confirmation of target acquisition is achieved by successive summations of the target bin power the totals being accumulated and compared with upper and lower thresholds. Confirmation and rejection results from total levels outside the thresholds while further accumulation and comparison follow the intermediate
20 condition.

25 Multiple target discrimination is provided by comparison of two S/N ratios, one obtained from target bin power and average power, and the other obtained from coherent power in the target bin and overall power in the target bin.

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